

Comparing Teachers' Aspiration towards Change in Teaching and Learning and their Actual Classroom Practices

Habsah, I., Roshafiza, H., Mohd. Majid, K. and Wan Zah, W. A.

Department of Foundations of Education, Faculty of Educational Studies, Universiti Putra Malaysia, 43400 Serdang, Selangor, Malaysia

ABSTRACT

This paper reports the findings of a study on teachers' aspiration towards change in their teaching and learning and their actual practices in the classroom in the Malaysian Secondary Schools. An instrument consisting of 24 items was used to measure the perception of the teachers on the aspiration and the actual implementation towards teaching and learning in the classrooms of these schools. Findings of the study indicate that the mean score of their actual teaching practices is 3.88 and a standard deviation of 0.52, which is higher as compared to the score on the teachers' aspiration towards change in teaching and learning, which obtained a mean of 3.13 and a standard deviation of 0.85. This study also reported that there are significant differences between the teachers' aspiration towards change and their actual classroom practices based on gender, age, ethnic, professional qualification and types of school. Despite these differences, the general attitude of the teachers in this study was found to be rather positive towards their teaching and learning practices in the classrooms.

Keywords: Teachers' aspiration, teaching and learning, teaching practice

INTRODUCTION

Teacher is an agent of change in education (Jeremy & Linda, 2005). Even though most

teachers have some kind of goals which they aspire to achieve in their teaching career, the aspiration of one teacher may not be the same as the aspiration of another. Aspiration, which is a strong desire and hope in accomplishing a certain aim, can be personally motivated. Larwood *et al.* (1995) supports this notion when he cites that the lack of adequate funding and resources in schools or classrooms can

ARTICLE INFO

Article history:

Received: 20 November 2011

Accepted: 27 April 2012

E-mail addresses:

habsah@educ.upm.edu.my (Habsah, I.),
roshafizahassan@gmail.com (Roshafiza, H.),
majidk@mohe.gov.my (Mohd. Majid, K.),
wanzah@educ.upm.edu.my (Wan Zah, W. A.)

* Corresponding author

be detrimental to teachers' aspirations (Totterdell, *et al.*, 2002). Meanwhile, Howe (2006) supports this view by pointing out that school cultures, which do not promote teamwork, sharing and mutual support and collaborative needs, may not enhance teachers' aspiration towards their teaching and learning.

Teachers' aspirations towards change in teaching and learning in this study are based on Tytler (2005). There are six elements supporting teachers' aspirations and their teaching and learning, namely: 1) A supportive and productive learning environment, 2) A learning environment which promotes independence, interdependence and self motivation, 3) A learning programme which reflects students' needs, backgrounds, perspectives and interests, 4) An environment which poses challenges to students, as well as supports and develops deep levels of thinking and application, 5) Assessment practices which are an integral part of teaching and learning, and 6) Learning which connects strongly with communities and practices beyond the classroom.

Changes in teaching and learning can also be defined as an internal process which involves several factors, namely, the school, outside communities, teachers' belief towards their actual teaching and learning and curriculum handed down by policy makers, teachers' awareness and experience of change processes that they anticipate and hope to implement. On this note, Goodson (2001) believes that positive changes in teaching and learning, which reflect that

change they aspire, can be materialized if all of the above factors are integrated and harmonized. This will create a social balance between the school culture and the community.

Teachers' demographic factor is an important aspect to be studied in order to identify their needs and desire towards change in their teaching and learning practices. Good and Weinstein (1986) support this view when they agree that teachers' aspirations and their expectations may be influenced by their ethnicity factor. However, Hoban (2000) believes that teaching and learning are also a dynamic relationship that changes with different students and contexts. This implies that changing one element in teaching and learning may result in changes in other aspects of the classroom, such as teaching strategies and assessments.

Goodson (2001) defines that the change process is attributed to internal and external factors. The internal factor that contributes to this process can be caused by teachers' personal background, teachers' belief and experiences, while the external factors can be attributed to outside forces such as changes in policies and curriculum. Good and Weinstein (1986) supports this view by asserting that an individual teacher's aspiration towards change in his/her teaching and learning is influenced by his/her own teaching experiences. The initial years of their new working experience can, to an extent, determine whether the teachers will remain in their profession and the kind of teachers they will eventually be. Fullan's

theory of educational change highlights the elements that are needed and the importance of a working relationship among teachers in implementing change. These elements are collegiality, open communications and trust and support which are closely interrelated (Fullan, 2001)

The implementation of the practices of teaching is also an important part of this paper, and the results of which will be subsequently discussed. Research on the practice of teaching has recently shifted from a focus on effective behaviours towards how teachers make sense of teaching and learning. Studies conducted by researchers on teaching have looked into the nature of teachers' knowledge, beliefs (Habsah *et al.*, 2006), perceptions and other such constructs in relation to learning to teach, teachers' classroom actions, and changes in practice (Richardson, 1994). Meanwhile, teachers' belief towards the salient aspects of the teaching and learning may or may not be congruent to their practices (Habsah *et al.*, 2006). However, Richardson (1994) contends that belief is an important contributing factor towards a teacher's action, which is based on reflective thinking, even though there are other contrasting views. This is due to the fact that teaching practice is governed by tradition and rules rather than by self-reflection on the teachers' actions (Martin, 2002).

According to Good and Weinstein (1986), the development and enhancement of educators' knowledge and the realization of educational innovations can be achieved if the gap between belief and practice is given serious consideration. A study

by Habsah *et al.* (2006) has pointed out that teachers' belief, which is congruent with their practices, must be based on the teachers' professed belief or philosophy which underlies their pedagogical practices, belief of students' potential, inculcation of noble values and their belief towards their roles and contributions to school and society.

Teachers' practices are also influenced by manipulating the elements of instructional policy in educational reform (Cohen & Hill, 2000) and also by teachers' individual differences such as age, gender, teaching experience and subject areas. In his research, Howe (2006) found that teachers' age and gender had been measured as to how closely teachers supported and related interpersonally with students. The teaching experience is also a factor which influences classroom practice and has been linked to teachers' flexibility and confidence (Bransford *et al.*, 1999). On the same note, Cheung *et al.* (1996) state that years of teaching experiences by teachers should influence their teaching careers throughout the years. This implies that the longer the teachers are in the teaching profession, the better are their teaching practices compared to novice teachers. School location may also have an influence on teachers' aspiration. Teachers from urban schools are provided with better facilities compared to their rural counterparts. For instance, urban areas offer easier access to further education (Hedges, 2000). Given better facilities, teachers can be more motivated and aspired to improve their teaching.

Teachers' actual teaching and learning are also influenced by the school's culture. One of the ways to look into the influence of experience on teachers' knowledge is by comparing experienced teachers and novice teachers' teaching and learning (Beijaard *et al.*, 2000). However, there is always uncertainty and ambiguity in changing the teaching practices because teaching involves a complex and a dynamic relationship with students, other teachers, other schools, classroom, curriculum and context in general. Teachers' practices, in spite of their philosophical stance, are influenced by external demands, such as high stakes testing or district's academic standards policy (Edwards, D. and Mercer, 1987). Supporting this view is Fullan (1991), who concludes that teaching practice, which is dominated or mandated by those who are external to the setting such as administrators, policymakers and school district officers, can lead to a change that is not desired. In Malaysia, the policies of the school curriculum in this study are mandated by the policy makers from the Ministry of Education (MOE) and the Curriculum Development Centre (CDC).

Moore and Shaw (2000) believes in the importance of providing infrastructure to support teachers in coping with new ideas in the process of realizing educational change. In view of this point, Munby and Russell (1992) feel that the teachers must ascertain the needs, concerns and abilities of students and select teaching approaches and strategies accordingly, thus making teachers' learning a meaningful life-long and continuous

process. This point is further supported by Milner (2006), when he contends that qualified and experienced teachers tend to have more effective classroom management skills and are better able to handle the complexities of their teaching.

Teachers' classroom practices in this study are based on a study by Tytler (2005) which incorporated the elements earlier highlighted. In his study, Tytler (2005) highlights the fact that it is a matter of great concern for teachers to connect strongly students' learning with the community and practice beyond the classroom. Apart from this, he also agrees that the processes of teaching and learning should involve challenging strategies that encourage deep questioning, self-assessment and reflection among students (Hmelo & Ferrari, 1997).

STATEMENT OF THE PROBLEM

There has not been any research conducted on teacher aspiration towards change in teaching and learning in schools in Malaysia thus far. However, a related research on teachers' aspiration towards change had been conducted by Baharudin (2002) and the focus of his research is on teachers' aspiration towards the implementations of curriculum innovations in teacher training colleges. Hence, the significance and importance of this study is that the findings on teachers' aspiration, in particular, can be used to identify teachers' needs in order to bring about the desired change in education in the country. Besides this, it is hoped that this study can be used for teachers to reflect upon their current teaching and learning

practices in order to ensure that their aspired goals in the teaching and learning processes will be accomplished (Hoban, 2000).

OBJECTIVE OF THE STUDY

The objective of this study was to compare teachers' aspirations towards change in teaching and learning and their actual classroom practices, based on demographic factors, namely: gender, age, ethnic, professional qualification, school category and school location.

METHODOLOGY

This study compared teachers' perceived aspirations towards change and implementation or practices in teaching and learning based on their demographic background, namely, gender, age, ethnic, school location, school categories, academic qualification, professional qualification and teachers' experiences in teaching.

The research design used in this study is quantitative in nature, which involves the use of descriptive and inferential statistics.

In more specific, descriptive statistic was used to measure the distribution of the respondents' demographic background. Meanwhile, inferential statistic (*t*-test and one-way ANOVA) was employed to measure the comparison of two or more variables used in the study.

A total of 404 samples comprising 254 National Secondary School teachers (107 Cluster Secondary School Teachers and 43 Technical Secondary School teachers in Malaysia) were selected as the samples of study using the clustered sampling method. A set of questionnaire consisting of 24 items was used to measure the teachers' aspirations towards change in teaching and learning.

The six elements of the questionnaire, as stated in Tytler (2005), had been identified in Part 1 of this paper. The reliability of the items measuring teachers' aspiration and practices was determined using Cronbach's Alpha reliability coefficient. The reliability of the 24 items was found to be 0.971 and 0.934, respectively.

TABLE 1
A comparison of Teachers' Aspiration towards Change in Teaching and Learning and Their Teaching Practices Based on Gender

Gender	N	Mean	SD	df	<i>t</i>	Sig
Aspiration						
Male	43	2.86	0.95	402	2.03	0.04
Female	361	3.14	0.84			
Practices						
Male	43	3.92	0.53	402	0.54	0.58
Female	361	3.87	0.51			

**p<0.05

FINDINGS AND DISCUSSION

Based on the data presented in Table 1, teachers' aspiration towards change in teaching and learning based on gender shows that female teachers have a higher mean of 3.14 and an SD of 0.84 as compared to the male teachers with a mean of 2.86 and an SD of 0.95. There is a significant difference with regards to teacher aspirations towards change in teaching and learning between male and female teachers with $t = 1.84$, $P < 0.05$. The mean difference based on the gender is 0.28.

Based on the findings shown in Table 2 above, there is a significant difference in the teaching and learning practices of the teachers at the national secondary schools based on their age, with $t = 2.49$, $P < 0.05$.

As for teachers' aspirations towards change in their teaching and learning based on ethnicity, the findings showed that Chinese teachers have higher aspirations as compared to their other ethnic counterparts with a mean of 3.434 and a SD of 0.99. The results of the study also showed that there is a significant difference between

TABLE 2
A Comparison of Teachers' Aspiration towards Change in Teaching and Learning and Their Teaching Practices Based on Age

Gender	N	Mean	SD	df	<i>t</i>	Sig
Aspiration						
<30 years	87	3.01	0.89	390	1.26	0.21
≥30 years	305	3.14	0.83			
Practices						
<30years	87	3.76	0.56	390	2.14	0.03
≥30 years	305	3.89	0.48			

**p<0.05

TABLE 3
A Comparison of Teachers' Aspiration towards Change in Teaching and Learning and Their Teaching Practices Based on Ethnic

Ethnic	N	Mean	SD	df	<i>t</i>	Sig
Aspiration						
Malay	331	3.10	0.82	396	3.35	0.04
Chinese	40	3.43	1.00			
Indian	28	2.95	0.97			
Practices						
Malay	331	3.87	0.51	396	0.56	0.57
Chinese	40	3.94	0.58			
Indian	28	3.81	0.45			

**p< 0.05

the teachers' aspiration towards change in the teaching and learning based on their ethnicity, with $F = 3.352$, $P < 0.05$. In particular, the Chinese teachers were found to have higher aspirations compared to the Indian teachers, with a mean difference of 0.484 and significant at $\alpha = 0.05$.

The results presented in Table 4 show that the teachers having DPM/DS with Education degrees have higher aspirations as compared to those with other professional qualifications, with a mean of 3.57 and a SD of 0.83, respectively. The results of the study also indicated that the teachers with teaching certificates have lower aspirations towards changes in the teaching and learning with a mean of 2.68 and a SD of 0.83 as compared to those with bachelor and diploma of education degrees.

There is a significant difference in the teachers' aspiration towards change in teaching and learning based on teachers' professional qualification. Teachers with DPM/ DS (with Education) have higher

aspirations compared to teachers who have Teaching Certificates with a mean difference of 0.896 and significant at $\alpha = 0.05$. There is also a significant difference in the level of aspiration between teachers with Diploma in Education compared to teachers with Teaching Certificates, with a mean difference of 0.58 and significant at $\alpha = 0.05$. The results also show that teachers with Bachelor in Education/ Bachelor of Education/ KPLI/ PKPG degrees have higher aspirations compared to teachers with Teaching Certification, with a mean difference of 0.452 and significant at $\alpha = 0.05$.

The findings as in Table 5 show the different aspirations of teachers in the various school categories. Teachers in the Cluster Secondary Schools have higher aspiration compared to teachers in the National Secondary and Technical Secondary Schools. As presented in Table 6, the findings of the study show that there is a significant difference in terms of the

TABLE 4

A Comparison of Teachers' Aspiration towards Change in Teaching and Learning and Their Teaching Practices Based on Professional Qualification

Prof. Qualification	N	Mean	SD	df	F	Sig
Aspiration						
Teaching Cert.	45	2.67	0.83	387	6.39	0.00
DPM/ Dip. of Science with Educ.	16	3.50	0.85			
Dip.of Educ.	112	3.26	0.79			
Bac. of Educ./ KPLI/ PPLD/ KPG	218	3.13	0.85			
Practices						
Teaching Cert.	45	3.80	0.51	387	0.7	0.51
DPM/ Dip. of Science with Educ.	16	3.96	0.42			
Dip.of Educ.	112	3.92	0.51			
Bac. of Educ./ KPLI/ PPLD/ KPG	218	3.86	0.52			

TABLE 5
A Comparison of Teachers' Aspiration towards Change in Teaching and Learning and Their Teaching Practice Based on School Categories

School Categories	N	Mean	SD	df	F	Sig
Aspiration						
Cluster	107	3.45	0.92	401	11.87	0.00
National	254	3.02	0.79			
Technical	43	2.86	0.89			
Practices						
Cluster	107	4.00	0.49	401	4.15	0.02
National	254	3.83	0.51			
Technical	43	3.81	0.54			

**p<0.05

TABLE 6
A Comparison of Teachers' Aspiration towards Change in Teaching and Learning and Their Teaching Practice Based on School Location

School Location	N	Mean	SD	df	F	Sig
Aspiration						
Urban	184	3.23	0.94	402	2.32	0.02
Rural	220	3.02	0.77			
Practices						
Urban	184	3.91	0.52	402	1.30	0.72
Rural	220	3.84	0.50			

**p<0.05

teachers' actual teaching and learning practices between the teachers in the Cluster Secondary School and the teachers of the National Secondary Schools ($t = 2.790$, $p < 0.05$).

School location is one of the variables studied in this research. Based on this variable, the results (shown in Table 6) reveal that teachers in the urban areas have a higher mean (mean = 3.23, SD = 0.94) as compared to those teaching in the rural areas (mean = 3.02, SD = 0.77). Meanwhile, teachers in the urban areas have higher

aspirations to change their teaching and learning practices. The findings show that there is a significant difference between teachers in urban and rural areas, with $t = 2.316$ and $p < 0.05$. In particular, the mean difference of the teachers' aspirations towards change in teaching and learning is 0.21.

CONCLUSION

Based on the findings of the study, the results show that teachers' aspirations towards change in teaching and learning are

influenced by demographic factors, namely, school categories, school location, gender, ethnics and professional qualification. The results also reveal that there are no significant differences in the teachers' aspirations towards change in their practice of teaching and learning based on other demographic factors such as age, ethnic, academic qualification and teaching experiences. From this study, it can be concluded that age and teaching experience do not have any significant contribution towards teachers' aspiration. However, age contributes significantly towards teachers' actual classroom practices. This can be due to the fact that senior teachers actual classroom practice is better compared to the novice teachers teaching and learning process due to their long experiences in the profession. These findings are in congruent with Jacobs *et al.* (1998) who stated that age is a determinant factor of teaching and learning practices among teachers.

Based on ethnic factor, the results show that there is a significant difference in teachers' aspiration based on their ethnic. In more specific, the findings reveal that the Chinese teachers' aspiration is the highest compared to the teachers of other ethnic groups. However, when it comes to actual teaching and learning practices, the results indicate that there is no significant difference based on ethnic. This is probably attributed to the fact that teachers, regardless of their ethnic origin, are tied to the syllabus handed top-down in the Malaysian school context.

As for on the location of the schools, the results reveal that teachers from the

urban schools have high aspirations towards change as compared to those from the rural schools. Nonetheless, in the same context of adopting and implementing a common syllabus and a centralized educational policy, their actual classroom practices show no significant difference. This also applies to teachers with various academic and professional qualifications.

Gender wise, the findings indicate that female teachers have higher aspirations in their need to change their teaching and learning practices compared to their male counterparts. This finding is congruent to the research by Foster (1993) which shows that the female teachers' needs and desire to change their current practices in the classroom are well-defined compared to the male teachers.

Teachers' age and their years of teaching experience were found to have no significant difference in terms of their aspirations, which can contribute towards their desired change in their actual teaching and learning. However, in terms of their teaching practices, there is a significant difference between them in terms of their age. Teachers who are less than 30 years of age have lower aspirations compared to those who are 30 years and above.

Based on professional qualification, teachers with teaching certificates have lower aspiration towards changes in their actual teaching practice compared to teachers with other qualifications. This can be attributed to the fact that these teachers, who are mostly forty years and above, are not open to changes and innovation.

On a similar note, Beijaard *et al.* (2000) found that novice teachers have greater aspirations towards implementing change in their teaching and learning practices than the senior teachers. This is reflected in the study by Watt and Richardson (2008) who states that beginning teachers based their professional engagement and career development aspirations as they relate to persistence and development in the teaching profession.

Based on the school categories, the findings of this study have shown that teachers in the Cluster Secondary Schools have higher means compared to those of the National and Technical Secondary Schools. This may be due to the fact that the environment and management of these schools are not the same as that of the National and Technical Secondary Schools. In fact, the teaching and learning environments in the Cluster Secondary Schools are also different from those of the National and Technical Secondary Schools. This is evidenced in the *Pelan Induk Pembangunan Pendidikan* (Ministry of Education, 2009) pertaining to the documents on Cluster Schools in Malaysia.

The comparatively lower mean in the aspirations among the rural school teachers can be attributed to the fact that rural schools often have problems recruiting and retaining high-quality teaching staff (Holloway, 2001). Furthermore, many rural schools cannot provide effective professional development (Khatti, 1997) and rural school teachers are also often taxed with being “experts” in several subjects and

grade levels (Holloway, 2001). Hence, it is possible that teachers in the urban schools have higher aspiration compared to the rural school teachers and this is reflected in their teaching practices.

To conclude, the overall findings of this study on the teachers’ aspiration towards change and their actual practices of teaching in the classroom have highlighted some important insights. Based on these findings, the teachers from the National Cluster Schools have higher aspirations towards changes and this is reflected in their actual teaching and learning practices as compared to those from other schools. The findings also show that novice teachers are more motivated than their senior counterparts, hence, for senior teachers, motivation and support should be sustained in order to contribute towards further improvement in the teaching profession.

REFERENCES

- Baharudin, Y. (2002). *Pemikiran Pendidik Guru Terhadap Hasrat Dan Pelaksanaan Inovasi Kurikulum Di Maktab Perguruan: Satu Kajian Kes*. Maktab Perguruan Sultan Abdul Halim Sungai Petani, Kedah.
- Beijaard, D., Verloop, N., & Vermunt, J. D. (2000). Teachers’ Perceptions of Professional Identity: An Exploratory Study from a Personal Knowledge Perspective. *Teaching and Teacher Education*, 16, 749–764.
- Bransford, J., Brown, A., & Cocking, R. (1999). *How People Learn: Brain, Mind, Experience and School*. Washington, DC: National Academy Press.
- Cheung, D., Hattie, J., Bucat, R., & Douglas, G. (1996) Identifying the Dimensions of Curriculum

- Implementation: The Nominal Group Technique. *Curriculum Forum*, 6(1), 1-16.
- Cohen, D., & Hill, H. C. (2000). Instructional Policy and Classroom Performance: The Mathematics Reform in California. *Teachers College Record*, 102(2), 294–343.
- Edwards, D., & Mercer, N. (1987) *Common Knowledge: The Development of Understanding in the Classroom*. London: Routledge.
- Foster, M. (1993) Other Mothers: Exploring the Educational Philosophy of Black American Women Teachers. In M. Arnot, & K. Weiler (Eds.), *Feminism and Social Justice in Education: International Perspectives* (pp. 101-123). New York: Falmer Press.
- Fullan, M. (1991). *The New Meaning of Educational Change*. New York: Teachers College Press.
- Fullan, M. (2001). *Leading in a Culture of Change*. San Francisco: Jossey-Bass.
- Good, T., & Weinstein, R. (1986). Teacher Expectations: A Framework for Exploring Classrooms. In K. Zumwalt (Ed.), *Improving Teaching* (pp. 63-85). Alexandria, VA: Association for Supervision and Curriculum Development.
- Goodson, I. F. (2001) Social Histories of Educational Change. *Journal of Educational Change*, 2, 45-60.
- Habsah, I., Ramlah, H., Aida Suraya, Md. Y., Hapsah, N., Rosini, A., & Wan Zah, W. A. (2006). Teachers' Belief towards the Principle Underlying the National Philosophy of Education in Malaysia. *The International Journal of Learning*, 13(9), 91-104.
- Hedges, J. (2000). In A. Mulkeen, & D. Chen (Eds.) (2008). *Teachers for Rural Schools: Experience in Lesotho, Malawi, Mozambique, Tanzania & Uganda: Africa Human Development Series*. Washington D. C.: The World Bank.
- Hmelo, C. E., & Ferrari, M. (1997). The Problem-Based Learning Tutorial: Cultivating Higher Order Thinking Skills. *Journal for the Education of the Gifted*, 20(4), 401-422.
- Hoban, G. F. (2000). Using a Reflective Framework to Study Teaching-Learning Relationships. *Reflective Practice*, 1(2), 165–183.
- Holloway, J. A. (2001). Investigating the impact of performance measurement. *International Journal of Business Performance Management*, 3(2/3/4), 167-180.
- Howe, E. (2006) Exemplary Teacher Induction: An International Review, *Educational Philosophy and Theory* 38 (3) (2006), pp. 287–297.
- Jacobs, J. E., Finken, L. L., Griffin, N. L., & Wright, J. D. (1998). The career plans of science-talented rural adolescent girls. *American Educational Research Journal*, 35(4), 681–704.
- Jeremy, N. P., & Linda V. (2005) Preservice Teachers Becoming Agents of Change: Pedagogical Implications for Action Research. *The entity from which ERIC acquires the content, including journal, organization, and conference names, or by means of online submission from the author. Journal of Teacher Education*, 56(1), 57-72
- Publisher name and contact information, as provided by the publisher; updated only if notified by the publisher..
- Khattari, N., Riley, K. W., & Kane, M. B. (1997). Students at Risk in Poor, Rural Areas: A Review of the Research. *Journal of Research in Rural Education*, 13(2), 79-100.
- Larwood, L., Falbe, C. M., Kriger, M. P., & Miesing, P. (1995). Structure and Meaning of Organizational Vision. *Academy of Management Journal*, 38(3), 740-69.

- Martin, S. H. (2002). The Classroom Environment and its Effects on the Practice of Teachers. *Journal of Environmental Psychology*, 22(1-2), 139-156.
- Milner, H. R. (2006). Classroom management in urban classrooms. In C.M. Evertson & C.S. Weinstein (Eds.), *The handbook of classroom management: Research, practice & contemporary issues* (pp. 491-522). Mahwah, NJ: Lawrence Erlbaum.
- Ministry of Education. (2009). *Pelan Induk Pembangunan Induk Pendidikan 2006-2010*. Retrieved on January 17, 2012 from http://www.moe.gov.my/upload/galeri_awam_manual/pipp2010/moe_pipp_09.pdf.
- Moore, S., & Shaw, P. (2000). *The Professional Learning Needs and Perceptions of Secondary School Teachers: Implications for Professional Learning Community*. Paper Presented to the Annual Meeting of the American Educational Research Association, New Orleans, LA, April.
- Munby, H., & Russell, T. (1992). Frames of reflection: An introduction. In H. Munby & Russell (Eds.), *Teachers and teaching. From classroom to reflection* (pp. 1-8). London: Falmer Press.
- Richardson, V. (1994) Conducting Research on Practice. *Educational Researcher*, 23, 5.
- Totterdell, P., Desmond, L., Birdi, C., & Wall, T. (2002). An Investigation of the Contents and Consequences of Major Organizational Innovations. *International Journal of Innovation Management*, 6(4), 43-368.
- Tytler, R. (2005). School Innovation in Science: Change, Culture, Complexity. In Boersma, K., & European Science Education Research Association. (2005). *Research and the quality of science education*. Dordrecht: Springer.
- Watt, H. M. G., & Richardson, P. W. (2008). Motivations, perceptions, and aspirations concerning teaching as a career for different types of beginning teachers. *Learning and Instruction*, 18(5), 408-428.